

Working Toward the Future with Our Children

The Education Technology Plan for New Jersey

New Jersey Department of Education

Approved by State Board 1/8/03

State Board of Education

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History

New Jersey's commitment to educational technology is exemplified by its long history of coordinating K-12 applications and initiatives into an agenda for excellence for the children of this state.

In 1993, "Educational Technology in New Jersey: A Plan for Action," a five-year plan, was developed by the Department of Education. The shared goal of the taskforce group was to develop a plan to guide effective and equitable utilization of technology and to implement the plan at every level throughout the state's educational system.

The outcomes envisioned by this plan were to do the following:

- Improve curriculum offerings for all students;
- Provide consistent, high-quality professional development for all teachers;
- Establish efficient communications for all schools; and
- Develop comprehensive use of technology in all appropriate areas of education.

In order to achieve these outcomes, the state plan addressed four major action areas:

- Building educational leadership;
- Preparing educators for new roles;
- Modernizing learning environments; and
- Developing networks and technology infrastructure.

In 1997, the New Jersey Department of Education implemented an aggressive, systemic approach to accelerate the implementation of educational technology in all schools throughout the state. The department articulated its vision with 15 benchmarks that became guidelines for the development of educational technology and the technology infrastructure throughout the state. With strong support across the state, these goals were met two years ahead of time. Due to these accomplishments, the department developed new goals and benchmarks. These goals were visionary in nature and supported the ongoing thrust of today's technology plan.

The Department of Education's ongoing vision for educational technology is expressed in the state's strategic plan which documents the role of educational technology in promoting students' academic achievement. Educational technology is richly embedded in New Jersey's Core Curriculum Content Standards for all students.

The state has continued support through Distance Learning Network Aid (DLNA) established in the Comprehensive Educational Improvement and Financing Act (CIEFA) (1997-2002). Districts use the aid to provide professional development opportunities associated with distance learning, purchase of equipment to support and establish multiple networks with high speed-voice, video and data services and in certain scenarios to retrofit sites (see examples of expenditures www.nj.gov/njded/techno/distlrn/esamples.htm). This will enable classrooms to have interactive

communication with other schools, colleges, museums, science laboratories and theaters through the nation and world.

During fiscal year 2002, along with all state-funded programs, DLNA has been level-funded based on the amount allocated the previous year. With this funding, established in 1997, came the requirement that every school district submit an approved educational technology plan.

Technology planning in New Jersey is shaped by several curriculum-based programs that were implemented to provide guidance to school districts on infusing technology into instructional programs. With funding from the Technology Literacy Challenge grants, as well as other grants, following programs have been supported:

- The Technology Fellowship: Mentoring and Modeling
- The County Coordinated Services
- Access—Collaboration—Equity
- Educational Technology and Whole School Reform
- Pairing and Sharing Instructional Resources via Teleconferencing
- Assistive Technology for Students with Disabilities

The New Jersey Department of Education continues to work to shape the future of our children by supporting the development of life-long knowledge skills.

Other Departmental Technology-Based Initiatives

In addition to providing guidelines to assist districts in planning for educational technology, the New Jersey Department of Education is making strides to improve its systems to provide more timely and accessible information to school districts. Examples of projects that are currently underway are cited below.

Grant Processing System:

A web-enabled system for all entitlement grants and ultimately for discretionary grants that will allow districts to submit their applications online is being pursued by the Office of Grants Management. This system will also provide for a consolidated payment system that allows a seamless process from application to final payment without having to re-key data. The online grant system will allow web-enabled tracking, reporting and data analysis and will expedite the review and approval process of grant applications.

Teacher Certification Information System:

The Office of Licensure and Credentials is seeking a web-based Teacher Certification Information System to support and streamline its business processes, process applications and fees, provide guidance to applicants and pre-screen candidates, perform document management, and integrate the functions of the existing computer systems into a single relational database management system. The new system will enable applicants to apply for and check the status of their applications for certification over the Web.

Student Database:

The student database initiative, as guided by the Task Force for Measuring Student Achievement, seeks to develop and implement a student-level system that will provide essential information about student and educational performance in New Jersey's public schools. The system will provide educators with a powerful tool to improve instructional quality. In accordance with privacy regulations, the system will assign and manage unique identifiers for 1.35 million students, and incorporate analytical tools to allow education data to be viewed in a more relevant, accurate, accessible, timely and secure manner. The system will be developed in a multi-phased approach over many years.

Long Range Facilities Plan and Project Application Tracking System (LRFP/PATS):

The Office of School Facilities is planning to procure Long Range Facilities Plan and Project Application Tracking System (LRFP/PATS) software for use by school districts and their consultants to submit their long range facilities plans (LRFP). Departmental staff will use the web-based system to determine approval of the districts LRFP, eligibility of projects and tracking of approved projects.

Data Collections:

The Office of Educational and Informational Technology is working to improve the data collection process in several ways. A number of applications have been upgraded to utilize the Internet as a vehicle for districts to submit data. These applications include Special Annual Data Report, Limited English Proficient, Violence and Vandalism, Title II evaluation, Title IV evaluation, Ed End-of-Year and Excess Cost Application and the Finance Survey.

The traditional DOEnet continues to be modernized for conducting data collections. The current version of DOEnet (Windows-based), in use now for a year, has made DOEnet data collections considerably simpler to use. We are also working to add an internet-based interface for using DOEnet data collections to the traditional dial-up form of access.

These projects support achievement of Goal 4 in this state educational technology plan. By developing web-based and database applications to automate a number of processes within the department, educators will be able to electronically submit district and school-level data, grant applications and long-range facilities plans. They will also have access to timely information about the status of certification

All students, no matter which district or school they attend, will be able to achieve the Core Curriculum Content Standards because they will have unlimited access to people, to a vast array of curriculum and instruction, and to information and ideas -- no matter where they exist.

-- This Belief Statement is the ultimate goal of all New Jersey Educational Technology programs and grants.

- Goal 1:** Students will attain the educational technology and information literacy skills that will assist them in achieving the Core Curriculum Content Standards and to succeed in the workplace of the 21st century.
- Goal 2:** Educators will attain the skills and knowledge necessary to effectively use educational technology to assist students to achieve the Core Curriculum Content Standards.
- Goal 3:** Students, teachers and administrators will have access to educational technology in all learning environments, including classrooms, media centers, schools, and other educational settings, such as community centers.
- Goal 4:** New Jersey school districts will establish and maintain the technology infrastructure necessary for students and educators to access electronic information and to communicate freely via technology.

“Principals and other key school leaders should help teachers and other stakeholders build effective teams by developing new organizational structures and creating a shared vision that focuses on authentic student learning.”

(Newmann, 1993; Maeroff, 1993).

GOAL 1: Students will attain the educational technology and information literacy* skills that will assist them in achieving the Core Curriculum Content Standards and to succeed in the workplace of the 21st century.

Suggested benchmarks for Goal 1:

- 1.1 Educational technology will be infused into every school district's curriculum and instructional activities.
- 1.2 All school districts will adopt curricula that include information literacy and educational technology standards aligned with the Core Curriculum Content Standards and accepted national standards.
- 1.3 All students will demonstrate proficiency in using educational technology and information literacy skills to enhance learning, increase productivity and promote creativity.
- 1.4 All students will have equitable and easy access to effective and engaging software, CD ROMs and online resources for content delivery as an integral part of every school curriculum. Content materials will meet universal design standards to assure access for students with disabilities.
- 1.5 All students will have equitable and easy access to the Internet and other distance learning technology to obtain information and resources from remote locations to collaborate, publish and interact with peers, experts and other audiences.
- 1.6 All students will use technology tools and applications for solving problems, making informed decisions, and participating in authentic, project-based learning.
- 1.7 All students will act responsibly and ethically when obtaining and using onsite and online information resources.

*Information literacy refers to the need for information, how to access, evaluate, synthesize and communicate it.

State

Examples of assistance that will be provided by the New Jersey Department of Education to enhance the achievement of Goal 1:

- Maintain the New Jersey Department of Education's Web site with useful and pertinent information to inform the educational community in New Jersey and to provide online learning activities for students and educators.
- Form strategic partnerships with the business community to develop projects and provide resources that will enhance student achievement of educational technology and information literacy skills.
- Conduct research to identify both emerging and promising practices in educational technology implementation and disseminate this information to districts and schools.
- Identify resources from the federal, state, county and local government, and the private sector to support necessary and effective implementation of educational technology.
- Identify and reward established projects and programs at the state, county, and local levels that are exemplary practices for the application of technology in teaching, learning, and collaboration.
- Encourage innovative programs and fill gaps in implementation through targeted grant programs at state levels.
- Conduct the annual public school technology survey and report on the results.
- Make available the results of national technology surveys and research with emphasis on New Jersey's results and related educational technology assessment information to the state's educational community and the public.
- Model the use of technology (Web site, video-conferencing, data collection, etc.).

Local

Indicators demonstrated by local school districts to enhance the achievement of Goal 1:

- Achieve student to multimedia computer ratio of 5:1 or less to provide access where and when it is needed for students and staff.
- Provide high-speed access to Internet for distance learning, communication and research-based activities.

- Develop grade-appropriate curricular processes in conjunction with staff (i.e. technology coordinator, media specialists and teachers) that support technology literacy (the use of word processing, databases, spreadsheets and presentation programs) as essential for all students.
- Encourage administrators participation in the New Jersey Exemplary Leadership Institute for Technology in Education (NJ ELITE) or similar professional development program.

The following concepts should be included in planning at the curricular levels.

- Develop a means for ongoing assessment of student progress in the use of technology literacy skills.
- Model and maintain lesson plans demonstrating infusion of technology into daily school activities.
- Apply the appropriate technology tool to the learning experience in all curricular areas.
- Demonstrate mastery of 21st century skills for all students.
 - ISTE: (<http://cnets.iste.org/index2.html>)
 - New Jersey Technological Literacy Standards (Draft 11/02)
- Use technology to evaluate mastery of technology skills in multiple formats and progressively challenging experiences.
- Provide all students with the opportunities to achieve, master and excel by utilizing technology anytime, anyplace.
- Understand Internet safety issues.
- Recognize the ethics involved with using online materials.
- Apply and understand copyright laws.
- Use appropriate search techniques and have the skills to evaluate and ethically use results.
- Produce multimedia projects (PowerPoint, FLASH, HyperStudio etc.) by the end of 8th grade.
- Guide students in developing grade-appropriate products that incorporate the use of technology.

Demonstrate and assess student progress through activities such as:

- Student interviews

- Student portfolios
- Observations
- Standards-based scoring guides
- Surveys
- New Jersey Statewide Assessments
- Ongoing performance-based assessments of computer literacy skills.
- Evaluation using AECT (Association for Educational Communications and Technology) and AASL's (American Association of School Librarians) Information Literacy Standards for Student Learning.

Student research, products and presentations demonstrating:

- * Efficient information retrieval skills
- * Use of materials evaluated for reliability and usefulness
- Improved student attendance
- Improved student retention
- Local Improvement Plan
- Community partnerships
- Local Foundations
- Grants where applicable at federal, state and local levels.

Perspectives

Assessment tools measure the effectiveness of practices, provide feedback for ongoing planning, and build accountability into the system. Electronic assessment tools — online or locally based - have the ability to provide timely, efficient results in flexible formats that allow schools and districts to focus on results. Assessment tools can document the current status of students' and teachers' use of technology. The results support further alignment of educational process for students and the development of a shared vision for curricular progress and staff development.

The results also demonstrate current evaluation of the alignment of assessment, standards, curriculum and instruction. Using technology's tools to do assessment provides the ability to develop individual learning plans and statistically view the effectiveness of curriculum processes on an ongoing basis.

Student achievement will be viewed through multiple measures in the school, such as teacher observations, portfolio, class work, assignments and New Jersey standardized tests.

To determine the status of the educational technology goals and benchmarks statewide for the 2006 timeline, the department will gather data, conduct technology surveys and participate in evaluation activities on an ongoing basis.

New Jersey's School Technology Survey is done annually and provides data on the status of infrastructure both human and technological. Survey results based on a 90 percent return rate have indicated a growing infrastructure. For example, the student to multi-media computer ratio is 4.4 to 1. Survey results indicated that teachers' skill levels in using technology's tools place 81% of our teachers at an intermediate level or above.

New Jersey currently has several relevant data collections – Grade Eight Proficiency Assessment (GEPA), Elementary School Proficiency Assessment (ESPA), High School Proficiency Assessment (HSPA) and the New Jersey School Technology Survey. We are looking very closely at additional sources for gathering student achievement data and developing strategies to collect data to analyze for different, but related, aspects of educational technology in New Jersey as follows:

- The level of teacher proficiency in infusing technology into the curriculum;
- The needs of each school in terms of developing its technology programs to assist us in continuous decision-making and program development;
- The level of student achievement; and
- The level of student technology literacy.

New Jersey School Technology Survey 2002 is the most recent data available.

[www.state.nj.us/njded/techno/survey/results/] The 2002 data from this survey is based upon a response rate of 90 percent from New Jersey's public schools.

Highlights:

93% of the public schools have technology coordinators

90% of the public school classrooms have Internet connectivity

95% of the public schools have Web sites

94% of the public schools are using Internet filtering software/monitoring software

Student to multimedia computer ratio is 4.4:1.

This annual survey will continue to provide the New Jersey Department of Education with an assessment of technology's use in schools. Current research will assist in developing a method

to determine the technology literacy of New Jersey's students and the level of technology implementation in schools.

The New Jersey Department of Education will continue to direct school districts and – in appropriate circumstances – direct schools to implement and update their local technology plans to address core elements of successful school educational technology activities, including facilities planning, maintenance and equipment upgrades, implementation strategies, staff development, curricula revision, spending and evaluation plans. These technology plans will be submitted to the county-based committees for approval.

“When teachers have access to high-quality results-driven, content-specific staff development their students’ academic achievement increases.”

—National Commission on Teaching and America’s Future

GOAL 2: Educators will attain the skills and knowledge necessary to effectively use educational technology to assist students to achieve the Core Curriculum Content Standards.

Suggested benchmarks for Goal 2:

- 2.1 All educators will participate in high-quality professional development activities and attain, at a minimum, intermediate proficiency levels in utilizing educational technology to enhance student achievement.
- 2.2 All supervision and evaluation practices will address the effective use of educational technology for student achievement of the Core Curriculum Content Standards.
- 2.3 All educators will use technology tools and applications that provide opportunities for authentic, student-centered, project-based learning.
- 2.4 All educators will have access to e-mail and other interactive tools to communicate with parents, students and other educators.
- 2.5 All educators will act responsibly and ethically when obtaining and using onsite and online information resources.
- 2.6 All schools will have technology coordinators for educators that offer timely, onsite guidance and modeling to enhance teacher and administrator proficiency in using and managing technology-based resources.

State

Examples of assistance that will be provided by the New Jersey Department of Education to enhance the achievement of Goal 2:

- Continue relationship with the Educational Technology Training Centers to ensure high quality technology integration into the curriculum.
(<http://www.state.nj.us/njded/techno/techtran.htm>)

- Assist districts in assessing the progress of teachers in infusing technology into their curricular processes.
- Develop initiatives with institutions of higher education to improve and enhance educational technology experiences for preservice teachers and integrate it into continuing professional development offerings.
- Provide grant opportunities that will contribute to the achievement of the Core Curriculum Content Standards, encourage innovative programs, fill gaps in implementation and support ongoing sustained professional development.
- Continue support of professional development activities, workshops and educational technology conferences that demonstrate technology skills and infusion of technology into the curriculum. Examples [of co-sponsorship] of technology conferences, [and] workshops, and resources [across the state]:
 - NJAET- New Jersey Association of Educational Technology
<http://www.njaet.org>
 - NJECC- New Jersey Educational Computing Cooperative
<http://njecc.org>
 - ETTCs- Educational Technology Training Centers
<http://www.state.nj.us/njded/techno/techtran.htm>
 - NJPEP- New Jersey Professional Educational Port
<http://www.njpep.org>
 - New Jersey's Statewide Systemic Initiative
<http://njssi.rutgers.edu/>
- Supports the Technology Standards for School Administrators (TSSA) developed by ISTE and devised as a collaborative effort among many organizations.
(<http://cnets.iste.org/tssa/>)
- Ensure that recipients of educational technology grant programs expend 25 percent of awards on staff development.
- Maintain the New Jersey Department of Education's Web site with useful and pertinent information to inform the educational community in New Jersey and to provide online learning activities for students and educators.
- Form strategic partnerships with the business community to develop projects and provide resources that will enhance student achievement of educational technology and information literacy skills.

- Conduct research to identify both emerging and promising practices in educational technology implementation and disseminate this information to districts and schools.
- Identify and disseminate resources from the federal, state, county and local government and the private sector to support necessary and effective implementation of educational technology.
- Identify and reward established projects and programs at the state, county, and local levels that are exemplary practices for the application of technology in teaching, learning, and collaboration.

Local

Indicators demonstrated by local school districts to enhance the achievement of Goal 2:

- Lists of available current professional development activities and evaluations of those offered through the district or by approved professional development providers and disseminate to educators through the district to support ongoing, effective and relevant staff development programs.
- On-going performance-based assessment of computer literacy skills.
- District and/or school technology plans demonstrating a high-achieving learning environment through technology and professional development plans supported by a technology coordinator or staff member specifically assigned the task of supporting skill development and technology infusion into the curriculum for staff and students.
- Professional Improvement Plans for teachers, media specialists and administrators individualized to develop skills necessary to infuse technology into daily practice.
- Technology inservices -- attendance by all staff.
- Administrators, faculty and staff modeling appropriate use of technology.
- Curriculum guides supporting 21st century workplace skills.
- Lesson plans evidencing infusion of technology into daily curricular activities.
- Certificates for professional development hours.
- Intradistrict certification for achieving core proficiencies developed by ISTE (standards for teachers) and TSSA (standards for administrators).

- Technology coordinators supporting skill development and infusion of technology into curricular processes.
- Observations.
- Classroom-based access to technology for all staff.
- Teacher and administrator mentoring programs dealing with technology skills and/or infusion skills.
- Prescriptive teacher assessments of technology skills (ex. LoTi).
- Surveys of teacher needs supporting the development of need-specific professional development to provide the ability of a skill continuum from drill and practice to applications that support authentic, student-centered, project-based learning.
- Teacher evaluation checklists supporting basic technology skill development
- Online evaluations
- Budgetary items expended for staff development.
- Development of a local foundation
- Staff development opportunities and support for all teachers to learn, use, and infuse 21st century skills into their daily processes.
 - International Society for Technology Education (ISTE):
(<http://cnets.iste.org/index3.html>)
 - ETTC Technology Proficiency Courses:
(<http://www.somds.k12.nj.us/~ettc/webpage.htm>)
 - Educational Information and Resource Center (EIRC)
www.eirc.org

Perspectives

On the national level, John Bailey, director of educational technology for the U.S. Department of Education spoke of the importance of the administration in bridging the gap between access and implementation.

As the country continues moving toward a technology agenda based not just on access to technology but use of technology, leadership becomes pivotal. Technology is just a tool, and as such its value is derived from how it is used.

Leaders assign technology its purpose by aligning the appropriate tools with the appropriate goals in order to overcome specific challenges. Without this alignment, technology will simply be another 'add-on' that tinkers around the edges of the classroom, instead of empowering teachers and students. Leadership's challenge to successfully integrate technology with the many levels of education goals and standards might be seen as analogous to a conductor with an orchestra. The conductor relies on well-trained musicians to use the right instruments at the right time in order to make music instead of noise. If we as a nation are going to make 'music' instead of 'noise' from our technology tools, it will require strong leaders who are coordinating the appropriate technology tools with well-trained teachers to solve real educational challenges.

On the state level, recognizing the need for specific organizational strategies to maximize the use of technology in New Jersey schools, the [New Jersey Principals' and Supervisors' Association \(NJPSA\)](#), the [New Jersey Association for School Administrators \(NJASA\)](#) and the [New Jersey Department of Education \(NJDOE\)](#) with the support of the Bill and Melinda Gates Foundation have joined forces to develop the NJ ELITE program. The purpose of this partnership is to establish a series of orientations, institutes, seminars and ongoing support activities dedicated to enhancing principals' and superintendents' technology leadership skills and achieve educational goals and systemic change. (2000-2003)

NJPSA and NJASA will continue to provide leadership-centered events for principals and superintendents and expand to include technology activities. There will be involvement of public and private sector partners to achieve educational goals beyond the grant-funded period.

On the local level, administrative leadership is key to effective change. In the document *Lessons Learned: Factors Influencing the Effective Use of Technology for Teaching and Learning, 2001*, it is stated that "the single most important factor affecting the successful integration of technology into schools is leadership". Effective administrators lead by example. Principals are the most visible administrators in the schools and need to use technology effectively in order for teachers to embrace the technology. The schools with great impact have great leaders.

In addition to what exists currently, New Jersey will require that all teachers involved with an educational technology grant program utilize a pre- and post-testing product that will assess the levels of technology implementation and usage in the classroom.

Professional Development

All teachers and media specialists must have the ability to use information technologies to enhance and expand teaching and learning. In order to do so, technology needs to be accessible when and where needed by faculty and students. Training should identify teaching strategies that support the successful integration of technology into the curriculum. Training can be accomplished by activities such as: inservice, co-mentoring, virtual communities of practice, workshops in-person or online and conferences.

Intense professional development means ongoing, sustained training that may include a series of workshops on one topic, in-class mentoring, online mentoring, mentoring in district or within the school, online workshops and courses, and regularly scheduled workshops that directly pertain to recognized needs. Skill development must be reinforced through in-class assistance and support. Additional guidance with lesson plans, teaching strategies, and problem-solving is needed in class. A mentor whether in-class, online or via videoconference, is an individual that will lend support to the classroom teacher. The mentor has expert knowledge with using technology in the classroom and can help teachers informally through one-on-one partnerships. A mentor will provide advice and support to the teacher and might assist in dealing with challenges in the classroom where an outside perspective is helpful.

Teachers will be in a position to gain knowledge on infusing technology and have the opportunity to implement the newly acquired knowledge in the classroom. The students will benefit from the teachers' knowledge and develop their technology literacy skills as the teachers' proficiency skills progress. It is expected that the pattern and the end result will be evident with technology infused into regular curricular processes and higher student academic achievement.

“As long as the computers are down the hall and up the stairs to the lab, they are irrelevant to education.”

–Elliot Soloway

GOAL 3: Students, teachers and administrators will have access to educational technology in all learning environments, including classrooms, media centers, schools, and other educational settings such as community centers.

Suggested benchmarks for Goal 3:

- 3.1 All students and educators will have regular and equitable access to technology equipment (both desktop and portable) when needed in all learning environments. This includes access to technologies with universal design features or other design modifications that assure access for students with educational disabilities.
- 3.2 All school districts will provide a ratio of five students or less to one multimedia computer in all instructional classrooms, with each of these classroom computers connected to the Internet.
- 3.3 All districts, schools and classrooms will be connected to broadband, high-speed voice, video and data networks in all learning environments.
- 3.4 All schools will have Local Area Networks (a system or network of interconnected computers within a school building), and all districts, where appropriate, will have Wide Area Networks (a network that electronically interconnects multiple school networks -- usually within a school district).
- 3.5 All districts and schools will have high-quality, highly informative, user-friendly Web sites.
- 3.6 All educators will have easy access to technical support via a technician and/or electronic assistance that is necessary to maintain operating technology equipment (e.g., help desks, hot lines, electronic monitoring, and troubleshooters).
- 3.7 All school districts will establish relationships with appropriate partners, including, but not limited to, other public agencies and entities, education institutions, community-based organizations and private corporations to increase opportunities for sustained technology access and broad, collaborative learning environments.

- 3.8 All districts and schools will identify and support the needs of students who do not have access to technology in their homes to enable them to continue their learning through technology when school is not in session.
- 3.9 All school districts will adopt an Acceptable Use Policy and other means to ensure that all students, teachers and administrators are able to use technology systems, online resources and software in a safe, ethical and secure manner.

State

Examples of assistance that will be provided by the New Jersey Department of Education to enhance the achievement of Goal 3:

- Encourage innovative programs and fill gaps in implementation through targeted grant programs.
- Web site with information on safety on the Internet for students, parents and schools.
- Maintain samples of Acceptable Use Policies (AUPs) on the state Web site as a resource for schools.
- Post sites for community access and adult literacy training centers.
- Facilitate partnerships exemplified by the NJ ELITE grant, the New Jersey Association for Educational Technology, the New Jersey Educational Computing Cooperative, the Business Partnership for Excellence in Education and Verizon's AccessNJ, etc.
- Maintain the New Jersey Department of Education's Web site with useful and pertinent information to inform the educational community in New Jersey and to provide online learning activities for students and educators.
- Form strategic partnerships with the business community to develop projects and provide resources that will enhance student achievement of educational technology and information literacy skills.
- Conduct research to identify both emerging and promising practices in educational technology implementation and disseminate this information to districts and schools.
- Identify and disseminate resources from the federal, state, county and local government, and the private sector to support necessary and effective implementation of educational technology.

- Identify and reward established projects and programs at the state, county, and local levels that are exemplary practices for the application of technology in teaching, learning, and collaboration.

Local

Indicators demonstrated by local school districts to enhance the achievement of Goal 3:

- Student-to-computer ratio should allow easy access when and where needed by students, administrators and staff.
- Student access to multimedia-capable computers with Internet access in classrooms and media centers.
- Student access to wireless handheld devices.
- Established high speed LANs (Local Area Network).
- Established high speed WANs (Wide Area Network).
- E-mail use.
- Technology-infused lesson plans.
- Productivity software.
- Inventory of hardware and software.
- Monitoring daily access to target technical support.
- Administrative software.
- A safe Internet environment for students to work in.
- Acceptable Use Policies (AUP) for all users.
- Maintenance of records that authorize use of a student's personal information on district- or school-based Web sites. (Bill A592).
- Lists of resources for students and parents through Web-based information, community centers, homework hot lines, teacher e-mail, teacher-developed Web sites and training/workshops provided by various districts.
- Education of administrators, teachers, media specialists and students in the ethical use of computers.

Perspectives

On Access:

New Jersey's Vision for Educational Technology:

All students, no matter which district or school they attend, will be able to achieve the Core Curriculum Content Standards because they will have unlimited access to people, to a vast array of curriculum and instruction, and to information and ideas -- no matter where they exist.

New Jersey's vision focuses on the ability of the student to access technology anywhere, anytime. In aligning locally with this vision, schools should provide additional access for students when feasible, such as before and after school in labs or classrooms, during lunchtime, in the school library or media center, community centers and after-school programs that expand classroom instruction. With technology infused at the school levels comes the responsibility to provide continued access. Partnerships should be investigated to support further access for students and community with limited or no home access when school is not in session.

On Collaboration:

Partnerships are advantageous for both the schools and the communities they serve. The relationship is rich in resources and benefits. Community involvement contributes expertise and skills that are needed by the school in order to successfully educate students. The student benefits from the skills and expertise introduced in the school system, which contributes to improvement of the community. The New Jersey Department of Education and local schools and districts should continue to research and facilitate partnerships.

On Parental Involvement

New Jersey has already taken steps to assist parents in understanding technology and the relationship to the curriculum.

The ACE grant program (www.state.nj.us/njded/techno/ace/abstract.htm) was designed to provide technology resources in public locations such as libraries, community centers, housing complexes or in school-based locations with extended hours. The centers began as a grant program whose purpose was to increase student achievement of the Core Curriculum Content Standards and family involvement in their children's education with the provision of staff-supported "off-hour" access to additional educational opportunities through technology. These centers provide an extension of a district's educational program for students and their families and resources that support participation in educational activities. Local projects funded through the ACE grant program develop and deliver programs that help to close the "digital divide" between those who have access to technology and those who do not. The department continues to support the centers by providing partnerships with the Chamber of Commerce and National Executive Service Corp.

All schools should strive for parental involvement. Research shows that parental involvement is critical to the successful academic achievement of the child. There are many ways schools can get parents involved in school activities using technology, such as having an active and current Web site that includes informative items for the parents, (e.g. test dates, in-service days, sports schedules, health alerts.)

"Substantial change programs do not run themselves. They need active orchestration and coordination."

-- Louis and Miles (1990)

GOAL 4: New Jersey school districts will establish and maintain the technology infrastructure necessary for students and educators to access electronic information and to communicate freely via technology.

Suggested benchmarks for Goal 4:

- 4.1 All school districts will obtain and maintain broadband, high-speed networks and reliable Internet access that enables students and educators to support their curricula activities.
- 4.2 All school buildings will have the equipment necessary to provide distance learning opportunities when and where it is needed in the school.
- 4.3 All schools will maintain quality hardware/software with adequate capacity and capability to support successful learning in classrooms, media centers and throughout the learning environment.

State

Examples of assistance that will be provided by the New Jersey Department of Education to enhance the achievement of Goal 4:

- Provide leadership and support for key initiatives such as the Educational Technology Training Centers, the state's NJ ELITE program, the federal e-rate program, bridging the digital divide and Verizon's *Access New Jersey* program.
- Identify and disseminate resources from the federal, state, county and local government, and the private sector to support necessary and effective implementation of educational technology.
- Encourage innovative programs and fill gaps in implementation through targeted grant programs.
- Maintain the New Jersey Department of Education's Web site with useful and pertinent information to inform the educational community in New Jersey and to provide online learning activities for students and educators.

- Form strategic partnerships with the business community to develop projects and provide resources that will enhance student achievement of educational technology and information literacy skills.
- Conduct research to identify both emerging and promising practices in educational technology implementation and disseminate this information to districts and schools.

Local

Indicators demonstrated by local school districts to enhance the achievement of Goal 4:

- High-speed connectivity to global and local resources through:
 - High speed WANs (Wide Area Networks)
 - High speed LANs (Local Area Networks)—wired or wireless
 - Multimedia computers
- Current productivity software (administrative, staff and student)
- Lesson Plans.
- Access to e-mail.
- Access to Internet.
- Budget/TCO (Total Cost of Ownership).
- Technical support for both infrastructure and teachers.
- Maintenance plan to keep current infrastructure fully operational.
- Replacement plan for obsolete equipment.
- After-school access through classes, labs and student programs that support and expand classroom instruction.

Perspectives

Technology integration is closely tied to the infrastructure in place. In order to have access to technology when and where it is needed, the school must have a high-speed, well-maintained Internet-connected infrastructure, multimedia-capable hardware and software and capacity to use the technology where and when it is needed in the learning environment.

Schools need to plan the development of high-speed voice, video and data networks that offer secure high-speed connectivity throughout the learning environment.

High-speed connectivity is the backbone for most educational technology services. Maintaining this infrastructure and providing technical support are essential. The infrastructure whether wired or wireless, supports the goal of developing a well-rounded student prepared with 21st century skills.

The technology infrastructure must not only address the physical plant's needs but also the needs of a secure system. A secure system maintained by skilled technical staff would include such items as:

- Emergency data retrieval tools supporting the educational technology network.
- Regularly scheduled backup of all data stored off site.
- A firewall or other suitable means of security in place to protect against unwarranted intrusion into system data.

On-line Tools and Resources

American Association of School Librarians

www.ala.org/aasl/

Charting the course to higher student achievement through technology

<http://www.itrc.ucf.edu/techsummit/Fulton.html>

Education Leadership Tool Kit: Change and Technology in America's Schools

<http://www.nsba.org/sbot/toolkit/index.html>

Institute for the Advancement of Emerging Technologies in Education

www.iaete.org

International Society for Technology in Education

<http://www.iste.org/>

Long Range Facilities Plan Instructions and Forms

<http://www.state.nj.us/njded/facilities/longrange/>

National Center for Technology Planning

http://www.nctp.com/html/plan_state.cfm

NCREL: Planning for Learning Through the Use of Technology

<http://www.ncrel.org/tools/>

NCATE

<http://cnets.iste.org/>

NJ School Technology Purchasing

<http://www.nj.gov/njded/techno/techpurch.htm>

Northeast and Islands Regional Technology in Education Consortium (NEIR*TEC)

<http://www.neirtec.org>

<http://www.neirtec.org/statepolicy/forum1/default.asp>

Northeast Regional Technology in Education Consortium

www.nettech.org

Southeast and Islands Regional Technology in Education Consortium (SEIRC)

Technology Integration Progress Gauge

<http://www.seirtec.org/eval/gauge.doc>

STAR CHART

<http://ww2.iste.org/starchart/>

Technology-Related Professional Development in the Context of Educational Reform: A Literature Review

http://www.sri.com/policy/cep/mst/SRI_PD_Lit_Review_2002.pdf

"The Lowdown on Scientific Research and What it Means for Schools."

http://www.techlearning.com/db_area/archives/TL/2002/10/reading.html

US Department of Commerce/Technology Administration: Reports

<http://www.ta.doc.gov/reports/TechPolicy/2020Visions.pdf>

<http://www.ta.doc.gov/Reports.htm#2020Visions>

WestEd: Improving Education Through Research

<http://www.wested.org/>